

REMARKS

This paper is being provided in response to the Final Office Action dated October 6, 2009, for the above-referenced application. In this response, Applicants have amended claims to clarify that which Applicants consider to be the presently-claimed invention. Applicants respectfully submit that the amendments to the claims are fully supported by the originally-filed specification, consistent with the discussion herein.

Applicants thank the Examiner for the indication of allowable subject matter in claims 23, 31 and 39.

The rejection of claims 17, 25 and 35 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,090,011 to Fukuta (hereinafter "Fukuta") in view of U.S. Patent No. 5,400,329 to Tokura (hereinafter "Tokura") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

Independent claim 17, as amended herein, recites a station for receiving a message from a first interconnected station on an input side and transmitting message information relating to the received message to a second interconnected station on an output side. Response means is included for returning a response to a request to receive and accept the message, the request being sent from the first interconnected station. Congestion detection means is coupled to the response means and is for detecting that congestion has occurred in the second interconnected station, wherein, when occurrence of congestion is detected by said congestion detection means, said response means conducts congestion control by delaying the response to the request to

receive and accept said message from being transmitted to the first interconnected station for a prescribed delay time, wherein delaying transmission of the response to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station. Claims 18-24 and new claim 34 depends directly or indirectly from independent claim 17.

Independent claim 25, as amended herein, recites a station for receiving a message from a first interconnected station on an input side and transmitting message information relating to the received message to a second interconnected station on an output side. Response means is included for returning a response to a request to receive and accept the message, the request being sent from the first interconnected station. Congestion detection means is coupled to the response means and which detects the occurrence of congestion in the station when the filling ratio in a buffer memory that stores said messages or received requests that have not been completely processed exceeds a prescribed filling ratio, wherein, when the occurrence of congestion in the station is detected by said congestion detection means, said response means conducts congestion control by delaying the response to the request to receive and accept said message from being transmitted to the first interconnected station, wherein delaying transmission of the response to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station. Claims 26-33 depend directly or indirectly from independent claim 25.

Independent claim 35, as amended herein, recites a station for receiving a message from a first interconnected station on an input side and transmitting message information relating to the

received message to a second interconnected station on an output side. A response unit sends a response to a request to receive and accept the message, the request being sent from the first interconnected station. A congestion detector, coupled to the response unit, detects whether congestion has occurred in the second interconnected station, wherein, when occurrence of congestion is detected by the congestion detector, the response unit conducts congestion control by delaying the response to the request to receive and accept the message from being transmitted to the first interconnected station for a prescribed delay time, wherein delaying transmission of the response to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station. Claims 36-40 depend directly or indirectly from independent claim 35.

Fukuta discloses a packet congestion control method and packet switching equipment. When a packet congestion is detected in association with any one of a plurality of output lines, a congestion indicator is added to a packet to be delivered to the output line so as to return the packet as a congestion notice packet to the transmission source equipment, and the input packet is relayed via the output line to the destination equipment. (See, e.g., Fig. 12, 13 and 16 of Fukuta.)

Tokura discloses a packet network and method for congestion avoidance in packet networks. The Office Action cites to Tokura as disclosing delay for transmitting data according to a destination appointed shorter window width and decreasing a transfer rate by setting a packet transmission interval, citing to col. 10, lines 18-27 and FIGS. 1A-C and 2A-C of Tokura.

In Fukuta, a packet is only sent upstream when congestion (or clearance of the congestion) is identified by the packet switch. As shown, for example, in the embodiment of Fig. 16, the transmitting Packet Terminal Equipment 50a (analogous to "an interconnecting station on the input side" according to the Examiner) stops sending the packets in response to a congestion notice, and then periodically polls the congested switch until a congestion cease notice packet is received in response. Fukuta explicitly states that Fukuta's system is designed to respond to congestion in a packet switch by identifying the congestion to the packet communication equipment without using an acknowledge packet or a monitoring packet. In particular, Applicants respond again to the indication in the Office Action Fukuta is "suggestive" of delaying the response because of Fukuta's discussion of "polling" during a "congestion period." Applicants submit that there is no response to a request to receive and accept a message disclosed in Fukuta like that recited by Applicants. On pages 2-3, the Office Action offers the argument that a response to a request to receive and accept a message has not been equated to an "acknowledgement packet". Acknowledgment of received data packets is known and is akin to a response to a request to receive and accept a message, as evidenced by Fukuta's discussion of the function of the acknowledgement packet for a receiving packet communication equipment to transmit an acknowledgement packet to a transmission source packet communication equipment indicating that a packet from the transmission source packet communication equipment has been received by the receiving packet communication equipment. (See, for example, col. 2, lines 19-28 of Fukuta).

Fukuta describes a prior art example concerning transmitting congestion information to the transmission source packet communication packet in the acknowledgment packet that is sent

to the transmission source packet communication packet, thereby allowing the transmission source to use that congestion information to restrict the packet flow rate of packets transmitted onto the information channel. (See, for example, col. 1, lines 57 to col. 2, line 9). Fukuta identifies flaws in that system and then, as noted above, proposes a system that specifically avoids the use of an acknowledgement packet (and/or the use of a monitoring packet that specifically identifies congestion to the transmission source without necessarily including any acknowledgement of packet receipt and acceptance). Accordingly, Fukuta is specifically and explicitly avoiding a system that includes a response to a request to receive and accept and message (i.e. an acknowledgement sent to a transmission source concerning receipt and acceptance of a transmitted packet), and is totally silent (nor even suggestive) of anything having to do with delaying a response. Fukuta's "POLLING" and "CONGESTION" discussions cannot be "suggestive" of something that Fukuta is explicitly avoiding.

In accordance with the above-noted discussion, Applicants have amended the claims herein to clarify the functioning of delaying the response to the request to receive and accept the message from being transmitted to the first interconnected station (the source of the request), specifically reciting that delaying transmission of the response to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station. Under Applicant's claimed system, the rate at which messages are transmitted from the upstream station (first interconnected station) is controlled by a response sent from the claimed station to a Receive & Accept request from the upstream station (first interconnected station). The claimed station detects congestion at the downstream station (second interconnected station) and, in response to the detection of

congestion downstream, the claimed station delays the response sent to the upstream station (first interconnected station) in response to the Receive & Accept request. (See, for example, page 4, line 18 to page 5, line 11 and Fig. 4 of the originally-filed specification.) With the above-noted system, as recited by Applicants, when congestion occurs on the output side of the claimed station, the delay in transmitting the response to the receive and accept request for the prescribed delay time causes a reduction in message throughput on the input side of the claimed station from the first interconnected station. (See, for example, second full paragraph on page 10 and second full paragraph on page 17 of the originally-filed specification).

Accordingly, Fukuta does not teach or fairly suggest the above-noted features recited by Applicants and Applicants maintain that Fukuta's discussion of polling during a congestion period does not teach or fairly suggest the congestion control by delaying a response to the request to receive and accept said message for a prescribed delay time, and that, indeed, Fukuta's system is specifically designed to avoid the use of a response to request to receive and accept (i.e. an acknowledgment packet). As discussed above, Fukuta's system does not disclose anything have to do with delaying a response, particularly wherein delaying transmission of the response to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station, as recited by Applicants.

Applicants submit that the addition of Tokura does not overcome the above-noted deficiencies of Fukuta with respect to the presently-claimed invention. Applicants refer first to the above-noted discussion of the Fukuta in which Fukuta explicitly teaches away from the use

of an acknowledgement packet (i.e. akin a response to a request to receive and accept a message) at all, let alone anything have to do with delaying such a response. Accordingly, regardless of Tokura's disclosure, the proposed combination of Tokura to attempt to overcome deficiencies of Fukuta is not an appropriately motivated combination when the noted deficiencies of Fukuta are present because of explicit statements in Fukuta that teach away from the combination of features from references that are proposed by the Office Action.

Moreover, however, Applicants' note that the Office Action cites to Tokura's disclose of setting a packet transmission interval to control a packet transfer rate, but submit that this disclosure in Tokura, and any other disclosure therein, is silent as to controlling congestion by delaying the response to the request to a receive and accept said message from the first interconnected station for a prescribed delay time, as is recited by Applicants. That is, Tokura refers to delaying transmission of a packet according to a packet transmission interval but is wholly silent as to any disclose of delaying a response to a receive and accept request from being transmitted to a first interconnected station (the source of the request) like that recited by Applicants. Tokura's system controls packet transfer according to a predicted congestion in the future at the source of the packet transmission. This is specifically evident from the citations to Tokura in the Office Action which explicitly discuss the determination of a packet transmission interval based on the prediction of congestion. It is has nothing to do with the features of congestion control like that recited by Applicants, specifically congestion control by delaying the response to the request to receive and accept said message from being transmitted to the first interconnected station for a prescribed delay time, wherein delaying transmission of the response

to the first interconnected station by the prescribed delay time causes a reduction in message throughput received by the station on the input side from the first interconnected station.

Accordingly, Applicants respectfully submit that neither Fukuta nor Tokura, taken alone or in combination, teach or fairly suggest at least the above-noted features as claimed by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 19, 20, 27, 28, 37 and 38 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of JP 2002-185500 to Shozo (hereinafter "Shozo") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17, 25 and 35 are discussed above with respect to Fukuta and Tokura. Claims 19, 20, 27, 28, 37 and 38 depend therefrom.

Shozo discloses a communication system and determining method for setting and updating proper alternative routes in a standard network system for eliminating congestion. The Office Action cites to Shozo in connection with features involving switching means and the use of a plurality of interconnecting stations, citing to paragraphs 0016-0025 of Shozo.

Applicants respectfully submit that Shozo does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention.

Shozo does not disclose, nor is Shozo cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura. Accordingly, Applicants respectfully submit that Fukuta, Tokura and Shozo, taken alone or in any combination, do not teach or fairly suggest at least the above-noted features as recited by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 21, 22, 29 and 30 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of SMS Forum, "Short Message Peer to Peer Protocol Specification" (hereinafter "SMS Forum") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17 and 25 are discussed above with respect to Fukuta and Tokura. Claims 21, 22, 29 and 30 depend therefrom.

SMS Forum discloses a short message peer-to-peer (SMPP) protocol. The Office Action cites to as disclosing flow control and congestion avoidance including the use of an error and/or a parameter concerning a congestion state, citing principally to page 43 of SMS Forum.

Applicants respectfully submit that SMS Forum does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention. SMS Forum does not disclose, nor is SMS Forum cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura.

Accordingly, Applicants respectfully submit that Fukuta, Tokura and SMS Forum, taken alone or in any combination, do not teach or fairly suggest at least the above-noted features as recited by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

The rejection of claims 18, 24, 26, 32, 36 and 40 under 35 U.S.C. 103(a) as being unpatentable over Fukuta in view of Tokura and further in view of U.S. Patent No. 5,757,772 to Thornberg (hereinafter "Thornberg") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

The features of independent claims 17, 25 and 35 are discussed above with respect to Fukuta and Tokura. Claims 18, 24, 26, 32, 36 and 40 depend therefrom.

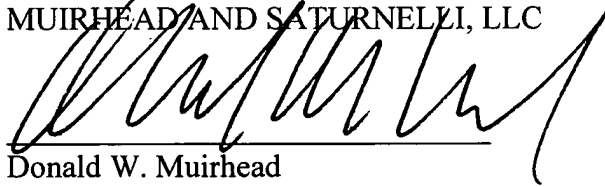
Thornberg discloses a method and system for packet switched radio channel traffic supervision. The Office Action cites to Thornberg as disclosing congestion evaluation use average response times and margin ratios, citing principally to col. 2, lines 18-31, col. 16, lines 47-57 and FIGS. 8A and 11 of Thornberg.

Applicants respectfully submit that Thornberg does not overcome the above-noted deficiencies of Fukuta and Tokura with respect to Applicants' presently-claimed invention. Thornberg does not disclose, nor is Thornberg cited in the Office Action in connection with, Applicants' recited features that are discussed above with respect to Fukuta and Tokura. Accordingly, Applicants respectfully submit that Fukuta, Tokura and Thornberg, taken alone or

in any combination, do not teach or fairly suggest at least the above-noted features as recited by Applicants. In view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
MUIRHEAD AND SATURNELLI, LLC

A handwritten signature in black ink, appearing to read 'Donald W. Muirhead', is written over a horizontal line.

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